

U.S. Pat. Appl. Ser. No. 10/552,395
Attorney Docket No. 10191/4259
Reply to Office Action of February 9, 2009

Amendments to the Drawings:

The attached Replacement sheet of drawings including Fig. 3 replaces the original sheet containing Fig. 3. Approval and entry are respectfully requested.

Attachment: one (1) Replacement sheet

REMARKS

With the addition of new claims 17 to 21 and the cancellation herein without prejudice of claim 9, claims 10 to 21 are currently pending in the present application, since claims 1 to 8 were previously canceled. In view of the foregoing amendments and the following remarks, it is respectfully submitted that all of the presently pending claims are allowable, and reconsideration of the present application is respectfully requested.

Applicants note with appreciation the acknowledgement of the claim for foreign priority and the indication that all copies of the certified copies of the priority documents have been received.

Applicants thank the Examiner for considering the previously filed Information Disclosure Statement, PTO-1449 paper, and cited references.

Claims 10 to 12 were rejected under 35 U.S.C. § 112, ¶ 1 as assertedly failing to comply with the enablement requirement. Applicants respectfully disagree.

With respect to the feature of inferring a control voltage of a piezoelectric element from a difference provided by subtracting first and second voltages from each other, wherein the control voltage is inferred from a characteristic representing a relation between the difference and the control voltage, the Examiner asserts that this feature is not enabled because the application appears to be inconsistent with respect to its meaning.

However, there is no inconsistency. Instead, the Examiner apparently incorrectly assumed that the reference in figure 3 to “ U_{control} ” was also a reference to “ U_a ” of figure 3. However, these are actually not the same. Instead, U_{control} is the measured resulting voltage immediately prior to a discharge process and U_a is the individual control voltage.

These features are clear from a reading of the specification. For clarity, figure 3 has been amended herein to refer to U_{Regel} as in figure 3 of International Patent Application Publication No. 2004/090314 upon which the present application is based, and consistent with the specification. See, e.g., Substitute Specification, page 5, line 30. Additionally, the specification has been amended herein to accurately reflect that U_{Regel} is in figure 3.

The specification clearly and consistently notes that, in an embodiment of the invention, with a rise in the measured difference ΔU ($U_{\text{max}} - U_{\text{Regel}}$), there is similarly a rise in an individual control voltage U_a .

For at least the foregoing reasons, claims 10 to 12 comply with the enablement requirement, and are in condition for immediate allowance.

Withdrawal of this rejection under 35 U.S.C. § 112, ¶ 1 is therefore respectfully requested.

Claims 9 to 11 were rejected under 35 U.S.C. § 102(b) as anticipated by European Patent Application Publication No. 1 138 909 (“the Rueger reference”). The Rueger reference does not anticipate the present claims, and the rejection should be withdrawn for at least the following reasons.

As an initial matter, claim 9 has been canceled herein without prejudice, thereby rendering moot the present rejection with respect to that claim.

Claim 10 relates to a method for determining a control voltage of a piezoelectric element. Claim 10 provides for measuring a difference between a first voltage at the piezoelectric element immediately following a charge process and a second voltage at the piezoelectric element immediately prior to a subsequent discharge process, and for determining the control voltage from the measured difference.

The Rueger reference provides for measuring a difference in a voltage at time t_1 and a voltage at time t_2 , and adapting a drive signal based on a deviation of the measured voltage difference to a desired voltage difference. However, nowhere does the Rueger reference state that time t_2 is a time immediately preceding a discharge process. Indeed, the graph in figure 8 of the Rueger reference representing the actuator voltage appears to suggest that time t_2 is not immediately prior to a discharge process, since the voltage level drop that occurs after time t_2 appears to continue along approximately the same gradual slope of voltage drop prior to time t_2 , whereas an abrupt drop would be expected upon commencement of a discharge process. Regardless, as stated above, nowhere does the Rueger reference disclose that time t_2 is immediately preceding a discharge process. Therefore, the Rueger reference does not disclose, or even suggest, measuring a difference between a first voltage at the piezoelectric element immediately following a charge process and a second voltage at the piezoelectric element **immediately prior to a subsequent discharge process**, as provided for in the context of claim 10.

Accordingly, the Rueger reference does not anticipate claim 10 or its dependent claim 11.

Withdrawal of this anticipation rejection is therefore respectfully requested.

Applicants thank the Examiner for indicating that claims 13 to 16 include allowable subject matter. In this regard, the Examiner will note that each of claims 13 (from which claims 14 and 15 depend) and 16 has been rewritten herein in independent form and to

essentially include features of its respective base claim. Accordingly, claims 13 to 16 are in condition for immediate allowance.

New claims 17 to 21 have been added herein. Claims 17 to 21 do not add new matter and are supported by the application, including specification, as originally filed. Claim 17 depends from claim 16 and is therefore allowable for at least the same reasons as claim 16. Claim 18 ultimately depends from claim 13 and is therefore allowable for at least the same reasons as claim 13. Claim 19 includes subject matter analogous to that of claim 16, so that claim 19 and its dependent claim 20 are therefore allowable for at least the same reasons as claim 16. Claim 21 ultimately depends from claim 10 and is therefore allowable for at least the same reasons as claim 10.

Accordingly, all of pending claims 10 to 21 are in condition for immediate allowance.

Applicants reserve the right to pursue the subject matter of the claims as previously presented in a continuation patent application. Further, any disclaimer that may have occurred during the prosecution of this application is expressly rescinded as regards any subsequently filed patent application.

Conclusion

In view of the foregoing, it is respectfully submitted that all of pending claims 10 to 21 are allowable. It is therefore respectfully requested that the objections and rejections be withdrawn. Prompt reconsideration and allowance of the present application are therefore respectfully requested.

Respectfully submitted,

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